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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/603,184

06/26/2000

Hirohisa Suzuki

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10/22/2004

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EXAMINER

RAMOS FELICIANO, ELISEO

ART UNIT

PAPER NUMBER

2687

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/603,184

Applicant(s)

SUZUKI ET AL.

Examiner

Eliseo Ramos-Feliciano

Art Unit

2687

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (U.S. Patent Number 5,828,467) in view of Arai et al. (U.S. Patent Number 5,929,936).

Regarding **claim 1**, Suzuki discloses a noise cancel circuit (Figure 1) that includes an interpolation circuit (5) for performing interpolation processing on a detected image signal (at 1) during generation of a pulse noise; the pulse noise portion is interpolated; see the abstract, Figure 1 and columns 6-7.

The image signal can be transmitted and received; see column 2, lines 28-34. However, Suzuki fails to specify that it can be a radio signal or radio transmitted/received, as claimed by applicant. Nevertheless, it is not critical to Suzuki the type of signal used; criticality resides on the method taught to cancel the noise out of the signal.

Arai et al. discloses a noise cancel circuit wherein the transmitted received signal is RF; as depicted in Figures 1-2, particularly element 3 (column 3, lines 29-44).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to apply Suzuki's teachings over radio signals because the teaching of noise cancellation taught by Suzuki is not signal type dependent as can be found in Arai et al.'s suggestion of applying noise cancellation to an RF/radio signal.

Regarding **claim 2**, Suzuki and Arai et al. disclose everything claimed as applied above (see *claim 1*). However, even though Suzuki and Arai et al. disclose interpolation, they do not specifically disclose spline-type interpolation as claimed.

The type of interpolation is not relevant as accurate results are achieved. While many different types of interpolation can be applied, spline interpolation is conventionally known for accurate approximation.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to specifically apply spline interpolation to Suzuki and Arai et al.'s signal for the advantage of more accurate approximation and results.

Regarding **claim 3**, Suzuki and Arai et al. disclose everything claimed as applied above (see claim 1). In addition, the circuit further includes a noise detection circuit (2 and 4) for detecting the noise portion as claimed by applicant. The noise portion is interpolated by the interpolation circuit (5) according to an output signal from the noise detection circuit; Figure 1.

Regarding **claims 4-6 and 8-9**, Suzuki and Arai et al. disclose everything claimed as applied above (see claim 3). In addition, the circuit further includes a selection circuit (12) for selecting either the output signal from the interpolation circuit or the detected signal (via 9 and 8). See Figure 1.

Interpolation is performed regardless of presence or absence of noise components. See Figure 1 and columns 1-4.

The circuit further includes a first delay circuit (8) and a second delay circuit (7) as claimed by applicant. The delay time of the first delay circuit corresponds to a sum of the

interpolation processing time and the delay time of the second delay circuit. This is to time-match the signal delay via both paths. See Figure 1 and citations above.

Regarding **claim 7**, Suzuki and Arai et al. disclose everything claimed as applied above (see *claim 6*). However, Suzuki and Arai et al. fail to particularly disclose that the location of the second delay circuit is prior to (before) the interpolation circuit.

Since the function of Suzuki's second delay circuit is to match-timing, its location is not relevant as long as timing match is achieved. Relocation of the delay circuit would be an engineering design choice.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to locate the second delay circuit prior to the interpolation circuit because of particular engineering design choice.

Regarding **claim 10**, Suzuki and Arai et al. disclose everything claimed as applied above (see *claim 1*). In addition, Arai et al. teaches that the signal can be an audio signal; see column 1, lines 1-44.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371 (c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this

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application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. **Claims 1, 3 and 10** are rejected under 35 U.S.C. 102(e) as being anticipated by Arai et al. (U.S. Patent Number 5,929,936).

Regarding **claims 1 and 3**, Arai et al. discloses a noise cancel circuit as depicted in Figures 1-2. The circuit includes an interpolation circuit 30 for performing interpolation processing on a detected radio signal. During generation of a pulse noise, a noise portion of the detected signal is interpolated, as depicted in Figures 6-10 and disclosed in the abstract and columns 3-5.

Noise detection is performed by a noise extracting unit (26, 29) in order to achieve noise reduction or cancellation. Therefore, the circuit also includes noise detection circuitry as claimed.

Regarding **claim 10**, Arai et al. disclose everything claimed as applied above (see claim 1). In addition, Arai et al. teaches that the signal can be an audio signal; see column 1, lines 1-44.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Arai et al. (U.S. Patent Number 5,929,936) in view of the knowledge generally available to one of ordinary skill in the art.

Regarding **claim 2**, Arai et al. discloses everything claimed as applied above (see *claim 1*). However, even though Arai et al. discloses interpolation (see Figures 3-10), he does not specifically disclose spline-type interpolation as claimed.

The type of interpolation is not relevant as accurate results are achieved. While many different types of interpolation can be applied, spline interpolation is conventionally known for accurate approximation.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to specifically apply spline interpolation to Arai et al.'s signal for the advantage of more accurate approximation and results.

#### ***Response to Arguments***

7. Applicant's arguments filed June 28, 2004 have been fully considered but they are not persuasive.

8. Applicant argues that Suzuki does not disclose a radio signal as claimed (page 4, third paragraph). In response, it should be noted that this is the reason why Arai et al. has been applied in combination with Suzuki. The suggestion to combine the references can be found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art as previously explained in the rejection under 35 USC 103(a).

9. Applicant argues that Arai et al. "is not directed to noise cancellation" (page 4, fourth paragraph), but then asserts that Arai et al. "describes arrangements relating to removal of noise" (page 5, second paragraph). Thus applicant's argument is not clear or is contradictory.

10. Applicant argues image signals *versus* radio signals and the motivation to combine Suzuki and Arai et al. See page 5 to page 6, first paragraph of the arguments filed June 28, 2004.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Suzuki teaches noise cancellation on an image signal that do not have to be a radio signal but which is not excluded from being a radio signal. Arai et al. teaches noise cancellation on a video/image signal that has been reproduced or embedded in a RF signal (radio signal). See Figure 1, element 3 and column 3, lines 29-44 of Arai et al. The data or information is video/image but the signal/carrier is RF (radio signal). Applying Arai et al. into Suzuki teachings, one of ordinary skill in the art would find obvious to obtain noise cancellation on a radio signal (or image signal embedded in a RF signal).

It should be noted that the claims do not distinguish between the frequency band and the nature of the signal as argued by applicant (see last paragraph in page 5).

11. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the frequency band and the nature of the signal; last paragraph in page 5) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).



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12. Applicant repeats same arguments with respect to the rejection of claims 1-3 over Arai et al. under 35 USC 102(e). See page 6, second full paragraph to end of page. In response, same reasons explained above are applied.

***Conclusion***

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

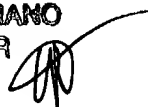
14. Any inquiry concerning this communication from the examiner should be directed to Eliseo Ramos-Feliciano whose telephone number is 703-305-0078. The examiner can normally be reached from 8:00 a.m. to 5:30 p.m. on 5-4/9 1st Friday Off.

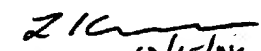
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid, can be reached on (703) 306-3016. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ERF/erf  
October 14, 2004

ELISEO RAMOS-FELICIANO  
PATENT EXAMINER



  
10/15/04  
LESTER G. KINCAID  
PRIMARY EXAMINER